

REMARKS

In the Official Action mailed 20 October 2010, the Examiner reviewed claims 11, 12 and 19-21. The Examiner has rejected claim 19 under 35 U.S.C. §112, second paragraph; has rejected claims 11, 12 and 19-21 for obviousness type double patenting; has rejected claims 11, 12 and 19-20 under 35 U.S.C. §103(a), and has objected to claim 21, as depending on a rejected base claim.

Applicant has amended claims 11, 19-21, and added new claims 22-24. Claims 11, 12 and 19-24 are now pending.

A renewed petition to withdraw the Terminal Disclaimers recorded in connection with this case is being filed along with the present paper.

Each rejection and objection is respectfully traversed below.

Rejection of Claim 19 under 35 U.S.C. §112, Second Paragraph

The Examiner has rejected claim 19 under 35 U.S.C. §112, second paragraph, as being indefinite. The Office Action takes the position that the clause “corresponding preferred gains of the selected cells” is indefinite. Applicant has deleted the offending clause, without prejudice.

Applicant adds new claims 23 and 24, stating that the “initial delay values are determined based on a typical load value determined using gain considerations.” This process step is described at page 22, line 15 through page 23, line 1. It is noted that the term “preferred gain” is explained in the following paragraphs of the specification, as an example of gain considerations for cells.

Accordingly, reconsideration of the rejection of claim 19 as amended is respectfully requested.

Rejection of Claims 11, 12 and 19-21 for Obviousness-Type Double Patenting

The Office Action includes a rejection of claims 11, 12 and 19-21 for obviousness type double patenting over claims 1-43 in the parent U.S. Patent No. 6,453,446 and claims 1-19 of parent U.S. Patent No. 6,725,438.

We identify two classes of claims in the parent patents, for the purpose of the analysis of the double patenting issue. First, some of the claims in the parent patents distinguish over the pending claims because they recite that the compressing and stretching steps occur at a different

point in the procedure than the present claims. So, this first group of claims in the parent patents could be considered alternative species claims. Second, some of the claims in the parent patents distinguish over the present claims, because they are silent as to the point in the procedure at which compressing and stretching occur. So this second group of claims in the parent patents could be considered earlier genus claims. The earlier species and the earlier genus claims are considered separately below.

A. Earlier Species Claims

Claims 12-16 and 27-30 in U.S. Patent No. 6,453,446, require the steps of compressing or stretching to occur “after the step of determining placement and before the step of determining area” or “after the step of placing and before the step of determining the area.” Thus these claims in the ‘446 Patent are the “alternative species” claims mentioned above.

Independent claim 19 includes the limitation reading:

prior to the assignment of wire loads based on the initial placement of the circuit path, determining an adjusted initial delay value for at least one of the selected cells by performing at least one of:

compressing the initial delay value of at least one of the selected cells to meet delay constraints for the circuit path, and
stretching the initial delay value of at least one of the selected cells to reduce slack in the circuit path;

This distinguishes claim 19 over all the “earlier species” claims, by requiring compressing or stretching “prior to assignment of wire loads based on the initial placement.”

The Office Action includes the comment, as to claims 12-15 of the ‘446 Patent, that “these steps [*i.e.* the steps in claims 12-15] mean that stretching and compressing the initial intended delay prior to the placement of the circuit path because the placement of the cells does not include establishing a routing or placement of a circuit path.” This comment suggests that the Examiner is interpreting the clause “prior to placement” of claim 19 prior to the amendment, as covering any act prior to event of a final placement, which includes a final routing, rather than

prior to the process of placement, or as the claims now state, prior to the event of “assignment of wire loads based on an initial placement.”

In view of the position taken in the Office Action, and consistent with the application as filed, claim 19 is amended to clarify the “prior to placement” limitation. As used consistently in the application as filed, the initial placement, including the example in the specification that makes initial placement of cells in “buckets,” includes the assignment of wire loads to the cells based on that initial placement. See, application as filed, page 56, lines 4-15 for example.

The Office Action takes the position of obviousness based on a broad reading of “placement” that is precluded by the amendments to claim 19.

In the prior art, an initial placement process is used to provide a basis for determining wire loads. Thereafter, delay values are determined for the selected cells using those assigned wire loads. The amended claim 19 clarifies the distinction of the present invention, now more clearly describing that initial delay values and adjusted initial delay values are determined before assignment of wire loads. Thus, Applicant submits that claim 19 recites a clear distinction over the prior art, and over the claims of the ‘446 Patent and the ‘438 Patent.

Applicant submits that the claims in the present application are not obvious in light of claims 12-15 of the ‘446 Patent (or claims 27-30), because claims 12-15 require that the compressing or stretching occur “after determining the placement and before the step of determining the area.” This restriction requiring the stretching and compressing after determining placement excludes the order of steps recited in the present claims. In fact, the limitation requiring stretching or compressing after assignment of wire loads recited in the claims 12-15 of the ‘446 Patent (or claims 27-30) was not found in the original application.

Furthermore, there is no evidence that the claims requiring stretching or compressing after placement in the ‘446 Patent suggest that it would have been obvious to do so before assignment of wire loads based on initial placement as recited in claim 19 as amended.

B. Earlier Genus Claims

Claims 51 and 52 of the ‘446 Patent and claims 12-16 of the ‘438 Patent do not state the order in which the steps of stretching or compressing occur relative to placement. These claims are the “earlier genus” claims mentioned above. There is no evidence to suggest that the species having specific order of steps recited in the present claims of performing stretching or

compressing prior to assignment of wire loads based on initial placement, would have been obvious in light of these “earlier genus” claims.

The Office Action includes a statement in connection with the analysis of claims in the ‘438 Patent reading, “It is noted that the steps of stretching and compressing are performed prior to establishing a routing or placement of a circuit path.” This comment again suggests that the Examiner is broadly reading the term “placement” on the event of final placement, rather than the process of placement. As mentioned above, the claims are amended to preclude this interpretation as discussed above.

The Office Action includes a passage suggesting that a finding that one of the claims in the prior patent anticipates the claims in the present application would require a finding of obvious-type double patenting. However, this is a misstatement of the law as explained in *In re Berg*, 140 F.3d 1428, (Fed. Cir. 1998). The rule of *In re Berg* is more properly stated that an earlier species claim anticipates a later genus claim, and therefore the later genus claim is not patentably distinct for the purposes of double patenting. That reasoning does not apply in the case of earlier genus claims, as is the case in the present application. It is not true that a genus claim anticipates a species of that genus, and it is not true that a species claim is as a matter of law not patentably distinct from an earlier genus claim. Indeed, the practice in the USPTO of recognizing species claims as patentably distinct in the restriction practice is confirmation of this basic law.

There is no basis in the record for finding that the specific order in the present claims requiring the compressing and stretching steps prior to assignment of wire loads based on an initial placement would have been obvious to the person of ordinary skill in the art based on the earlier genus claims in the parent patents.

Accordingly, reconsideration of the rejection of claim 11, 12 and 19-21 as amended for double patenting is respectfully requested.

Rejection of Claims 11, 12 and 19-20 under 35 U.S.C. §103(a)

The Office Action rejects claims 11, 12 and 19-20 as unpatentable under 35 U.S.C. §103(a) over Li *et al.* (US 5,666,290). Reconsideration is requested in view of the amendments.

As discussed above, claim 19 is amended to require the stretching or compressing step to occur prior to assignment of wire loads based on an initial placement. The interpretation taken in

the Office Action that the term “placement” in original claim 19 reads on the event of final placement is therefore precluded by the amendment.

In addition, the Office Action acknowledges that Li *et al.* does not teach “stretching or compressing the initial delay prior to placement.” It is concluded however that this limitation would have been obvious, as follows:

the circuit path). Li et al. do not explicitly teach stretching or compressing the initial delay prior to the placement. However, Li et al. teach input initial constraints, identifying driver/buffer pairs, performing initial placement and computing path delays (Fig. 2). In order to meet the input constraints it would be obvious to an artisan skill in the art at the time the invention was made to perform an additional step by compressing the initial delay value of at least one of the selected cells to meet delay constraints for the circuit path or stretching the initial delay value of at least one of the selected cells to reduce slack in the circuit path prior the placement in order to meet the input constraints and making some size adjustment of the initial size of the component described in col. 8 lines 15-17) during the placement or after the placement so that the initial delay value or the adjusted initial delay value would be maintained.

Office Action, page 7

The just quoted passage in the Office Action reads the claim on actions after assignment of wire loads based on an initial placement. This reading of the claim is precluded by the amendment of claim 19, as discussed above.

Furthermore, Applicant submits that the passage reproduced above, and the Office Action as a whole, do not provide evidence supporting the finding that applying compressing and stretching prior to placement would have been obvious. Indeed, the Li *et al.* reference does not describe compressing and stretching.

In the Office Action, the primary fact that compressing and stretching were known in the art at the time of the present invention is assumed to be an obvious addition to the placement

process shown in Fig. 2 of Li *et al.*, without supporting citation and without explicitly taking Official Notice of a well known fact. It is not clear to Applicant what is being considered to be well known “compressing and stretching” in this context. Therefore Applicant disagrees. In light of the amendments discussed above, this issue may be moot.

Nonetheless, to the extent that the Examiner is relying on Official Notice that compressing and stretching as used in the context of the present application, is well known prior art, then Applicant challenges that reliance on Official Notice, and seeks specific documentary support of the Official Notice under the provisions of MPEP §2144.03, section C.

Accordingly, reconsideration of the rejection of claims 11, 12 and 19-21, as amended, under 35 U.S.C. §103(a) is respectfully requested.

Objection to Claim 21

The Office Action states that claim 21 would be allowable if amended to incorporate its base claims, and to overcome the rejection under 35 U.S.C. §112, second paragraph.

Reconsideration of the objection to claim 21 is respectfully requested in view of the amendments of its base claims discussed above.

New Claims 22-24

Applicant presents new claim 22 herein, which includes the subject matter of claims 19, 20 and 21, with amendment to overcome the rejection under 35 U.S.C. §112, second paragraph, as discussed above in connection with claim 19. The Examiner indicated that such claim would be allowable.

As mentioned above in connection with the rejection of the claims under 35 U.S.C. §112, second paragraph, Applicant presents new claims 23 and 24, which depend from claims 19 and 22, respectively. These claims state that the “initial delay values are determined based on a typical load value determined using gain considerations.” This process step is described at page 22, line 15 through page 23, line 1. It is noted that the term “preferred gain,” objected to in the rejection based on 35 U.S.C. §112, second paragraph, and removed from claim 19 as a result, is explained in the paragraphs following page 23, line 1, of the specification as an example of gain considerations for cells.

CONCLUSION

It is respectfully submitted that this application is now in condition for allowance, and such action is requested.

The Commissioner is hereby authorized to charge any fee determined to be due in connection with this communication, or credit any overpayment, to our Deposit Account No. 50-0869 (SYNP 1006-0).

Respectfully submitted,

Dated: 20 January 2011

/Mark A. Haynes/

Mark A. Haynes, Reg. No. 30,846

SYNOPSISYS, INC.
c/o HAYNES BEFFEL & WOLFELD LLP
P.O. Box 366
Half Moon Bay, CA 94019
(650) 712-0340 phone
(650) 712-0263 fax